and the right-hand side of equation (2*) appears to consist of the following terms :—

$$+ \left(e - \frac{eq.c.f.}{2\ grav.} \right) \cdot \left(\frac{c}{a} \right)^2 \cdot \left(\frac{a}{a'} \right)^3 \cdot \left(\frac{a'}{r'} \right)^3$$

$$\times \left\{ \begin{array}{l} 5\ (\sin \omega \cdot \cos^2 1' \cdot \sin v' + \cos \omega \cdot \sin 1' \cdot \cos 1')^2 \\ -2\ (\sin \omega \cdot \cos^2 1' \cdot \sin v' + \cos \omega \cdot \sin 1' \cdot \cos 1')\ \sin \omega \cdot \sin v' \\ -\cos^2 1' \end{array} \right\}$$

$$+ \frac{\sigma'}{A'^3} \cdot \left(\frac{A'}{R'} \right)^3 \cdot \left(\frac{a'}{a} \right)^2 \cdot \left(\frac{r'}{a'} \right)^2 \times \left\{ 3\ \cos^2 1' \cdot \cos^2 \overline{|v'-V'|} - \cos^2 1' \right\}$$

$$+ \frac{\sigma'}{A'^3} \cdot \frac{\epsilon - \mu}{\epsilon + \mu} \cdot \frac{a}{A'} \cdot \left(\frac{A'}{R'} \right)^4 \cdot \left(\frac{a'}{a} \right)^3 \cdot \left(\frac{r'}{a'} \right)^3$$

$$\times \left\{ -15\ \cos^3 1' \cdot \cos^3 \overline{|v-V|} + \frac{3}{2} \cos 1' \cdot \cos \overline{|v'-V'|} + 3\ \cos^3 1' \cdot \cos \overline{|v'-V'|} \right\}$$

$$+ \frac{\sigma'}{A'^3} \cdot \frac{\epsilon^3 + \mu^3}{(\epsilon + \mu)^3} \cdot \left(\frac{a}{A'} \right)^2 \cdot \left(\frac{A'}{R'} \right)^5 \cdot \left(\frac{a'}{a} \right)^4 \cdot \left(\frac{r'}{a'} \right)^4$$

$$\times \left\{ +\frac{35}{2} \cos^4 1' \cdot \cos^4 \overline{|v'-V'|} - \frac{15}{2} \cos^2 1' \cdot \cos^2 \overline{|v'-V'|} - \frac{15}{2} \cos^4 1' \cdot \cos^2 \overline{|v'-V'|} + \frac{3}{2} \cos^2 1' \right\}$$

$$+ \frac{\sigma'}{A'^3} \cdot \left(\frac{A'}{R'} \right)^3 \cdot \left(\frac{r'}{a'} \right)^2 \cdot \cos 1' \cdot \sin 1' \times bt \times 3 \cdot \cos \overline{|v'-V'|} \cdot \sin \overline{|V'-K|}$$

$$+ \frac{\sigma'}{A'^3} \cdot \frac{\epsilon - \mu}{\epsilon + \mu} \cdot \frac{a'}{A'} \cdot \left(\frac{A'}{R'} \right)^4 \cdot \left(\frac{r'}{a'} \right)^3 \cdot \cos^2 1' \cdot \sin 1' \times bt$$

$$\times \left\{ -15 \cdot \cos^2 \overline{|v'-V'|} \cdot \sin \overline{|V'-K|} + 3\ \sin \overline{|V'-K|} \right\} ;$$

and there are no terms multiplied by $\dfrac{dv}{dt}$.

1877, *March* 5.

The Astronomer Royal, in an oral address, adverted to M. Le Verrier's investigations on the possibility of discovery of an intra-mercurial planet, and to his issue of a circular requesting that observations of the Sun's disk for the passage of such planet might be made on March 21, more particularly on March 22, and on March 23. He pointed out that for observation of a transit whose time could not be even approximately predicted, but which certainly would occupy only two or three

hours, it was necessary that observations should be made at widely separated meridians of the earth; and he stated that, at his instance, telegrams had been issued to one station in India, to three in Australia, to two in New Zealand, to Washington, U.S., and also (though it was doubtful whether it could arrive in time) to Santiago di Chili. It was much to be wished that observations could be obtained from San Francisco. He did not doubt that M. Struve would obtain observations in Eastern Siberia, and probably in Japan, and other islands. The Astronomer Royal also remarked that in scrutinizing the Sun's disk with a telescope, it might be possible to pass over some points without observation; and that in this instance photographic pictures, admitting of subsequent long and continuous study, would be preferable to eyeviews in a telescope, in which the power of deciding on the visibility of a spot must terminate with the actual view.

The Astronomer Royal also invited attention to the observations in connection with the determination of the Sun's parallax, which might advantageously be made at the approaching opposition of *Mars*. He cited from the *Monthly Notices* of 1857, his paper "On the means available for correcting our measures of the Sun's distance during the next 25 years," in which, alluding to the method by observing the displacement of *Mars* in right ascension when he is far east and far west of the meridian, and pointing out its facilities, he had concluded that "this method is the best of all." He had endeavoured, in several late Nos. of the *Monthly Notices*, to give facilities for the prosecution of this method, by observations, with an equatoreal, of the transits of *Mars* and stars; but an unexpected opportunity of obtaining observations, probably of a much superior class, has presented itself. Lord Lindsay is willing to lend his heliometer; and Mr. Gill, who has had extensive experience in the use of that instrument, and is perfectly acquainted with its adjustments of all kinds, offers his own time and labour at St. Helena, or Ascension. He proposes to undertake these observations on a guarantee of 500*l*. for expenses; any amount exceeding that sum to be borne by himself. This expense is a trifle compared with that which has been incurred for the transit of *Venus*, which, including the expenses of different nations, may amount to 200,000*l*. The Astronomer Royal suggested that this is an occasion on which the Royal Astronomical Society may well step in with its funds. He mentioned its funds in contradistinction to those of the Government, because the Government has been very liberal, and has felt a great strain put upon it by the expenses in observation of eclipses, and for the transit of *Venus*; and for that very reason the Astronomer Royal is very cautious indeed in suggesting any further application. If the Royal Astronomical Society will not support it from its funds, the Astronomer Royal hopes that the sum may be raised by contributions of individuals, in which he is willing to bear a part [naming a sum].

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